

SAMHSA-HRSA Center for Integrated Health Solutions

Understanding Diabetes

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Diabetes and Fellow Horseman

death HTN dyslipidemia diabetes





Diagnosis of Diabetes

Fasting blood sugar \geq 126 (normal <100)

Random glucose >200 with symptoms polyuria, polydipsia, polyphagia, weight loss

2hr glucose>200 after a 75g glucose challenge

Hemoglobin A1C \geq 6.5 (normal <5.8)



The Diabetes Epidemic –US Data 2012

- Due to obesity rates diabetes has become far more common
- 29.1 million Americans have diabetes 9.3% percent of the U.S. population. Of these, 8.1 million do not know they have the disease.
- In 2012, 12.3 % of the population over age 20 have diabetes.
- Rates of diabetes, 20-44 4.1%, 45-64- 16.2%, over 65 25.9 %

The Diabetes Epidemic

It is estimated that 86 million adults, or 37% of the population over age 20, have abnormal glucose metabolism short of diabetes

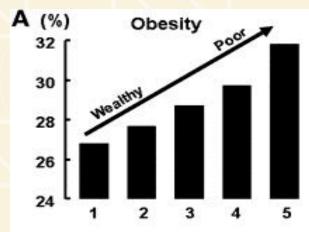
About 1.9 million people aged 20 years or older were newly diagnosed with diabetes in 2010 (5205 per day, 216/hour, 3.6/min) During our talk there will be 200 more diabetics diagnosed.

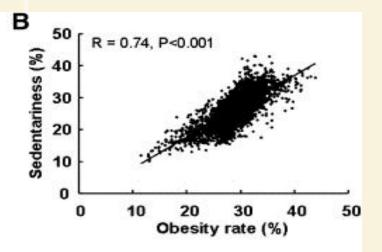


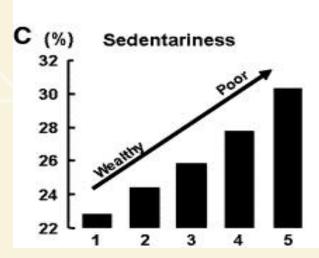
Diabetes and Ethnicity

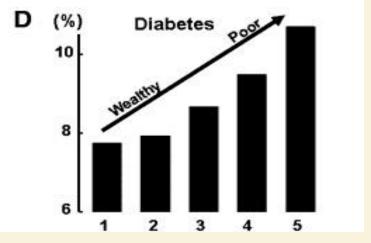
- 2010–2012 national survey data for people aged 20 years or older
- 7.6% of whites were diabetic
- 9.0% of Asian Americans were diabetic (4.4% Chinese 13% for Asian Indians)
- 12.8% of Hispanics were diabetic
- 13.2% of blacks were diabetic
- Hispanics, diabetes rates were 9.3 % for both Cubans, 13.9% for Mexican Americans, and 14.8% for Puerto Ricans.
- Native Americans- 5.5% Alaskans to 31% in the Pima Indians, average- 15.9%

Diabetes and Income



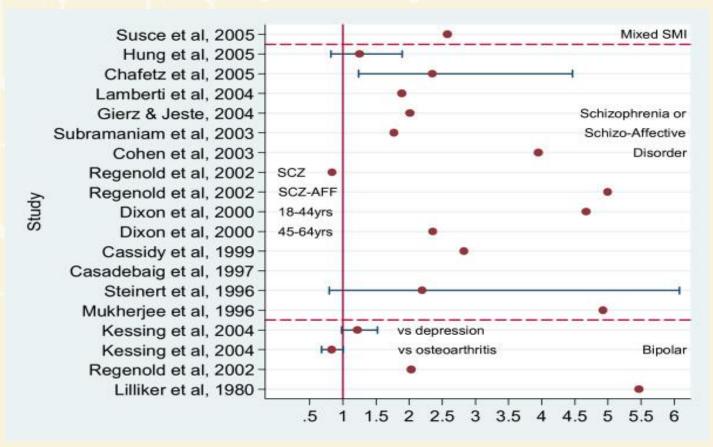






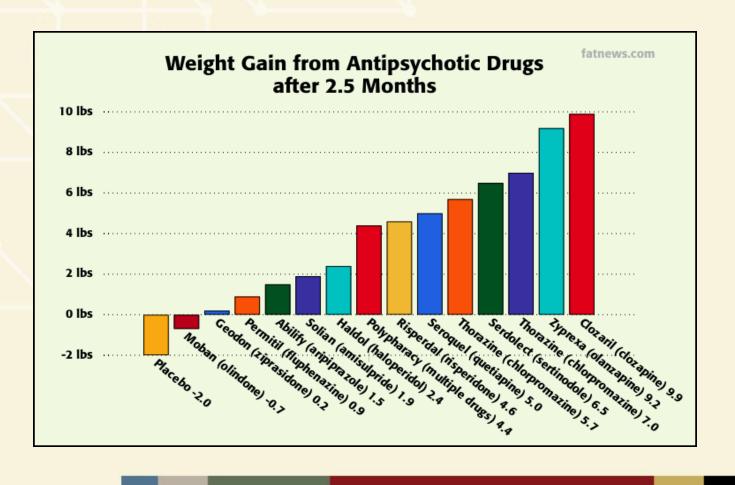


Diabetes and SMI





Diabetes and Antipsychotic Agents





Weight Gain and Psychiatric Medications

Promote weight gain

SSRIs

Tricyclics

Antipsychotics (most)

Lithium

Depakote

Mirtazipine

Weight neutral

Bupropion

SNRIs

Some Antipsychotics (Abilify

Geodon)

Lamotrigine



3 Rules when prescribing psychotropic medications for diabetics

- 1- If possible prescribe weight neutral agents
- 2- Don't forget the first rule
- 3- If you feel like prescribing olanzapine, get up and walk around until the feeling goes away.



Criteria for Recommended Screening BMI>25kg/m2 and.....

Physical inactivity

First degree relative with DM

High risk ethnicity-AA, Latino, Native American, Asian American, Pacific Islander

Women with baby>9lbs or Gestational DM

Hypertension

HDL<35 and/or triglycerides >250

Women with Polycystic Ovarian Syndrome

A1C> 5.7, IGT or IFG on previous testing

Cardiovascular Disease

Other syndromes associated with Insulin resistance



Criteria for Recommended Screening

In the absence of criteria (risk factors on previous slide), testing for diabetes should begin at age 45 years.

If results are normal, testing should be repeated at least at 3-year intervals, with consideration of more frequent testing depending on initial results (e.g., those with prediabetes should be tested yearly), and risk status.



Diabetes Complications

Blindness and eye problems

Diabetes is the leading cause of new cases of blindness among adults aged 20–74 years

Kidney disease

Diabetes is the leading cause of kidney failure, accounting for 44% of all new cases of kidney failure in 2008.



Diabetes Complications

Nervous system disease

About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage.

Amputations

More than 60% of nontraumatic lower-limb amputations occur in people with diabetes.

In 2006, about 65,700 nontraumatic lower-limb amputations were performed in people with diabetes



Diabetes Complications

Dental disease

Periodontal (gum) disease is more common in people with diabetes

Complications of pregnancy

Poorly controlled diabetes during the second and third trimesters of pregnancy can result in excessively large babies, posing a risk to both

Depression people with diabetes are twice as likely to have depression



Diabetes and Hypertension

In 2005–2008, of adults aged 20 years or older with self-reported diabetes, 67% had blood pressure greater than or equal to 140/90 millimeters of mercury (mmHg) or used prescription medications for hypertension.



Death from Diabetes

- In 2004, heart disease was noted on 68% of diabetes-related death certificates among people aged 65 years or older.
- In 2004, stroke was noted on 16% of diabetesrelated death certificates among people aged 65 years or older.
- Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes.
- The risk for stroke is 2 to 4 times higher among people with diabetes.

Hemoglobin A1C

In the normal 60-120 day lifespan of the red blood cell, glucose molecules react with hemoglobin, forming glycosolated hemoglobin.

Once a hemoglobin molecule is glycosolated, it remains that way. HbA1c level is in part affected by blood sugar levels over a three-month period. However, it is heavily weighted to levels over the past 45-60 days.

Hemoglobin A1C measures longer term control and is used in all recent studies of the effect of diabetic control on clinical outcomes

Correlation of A1C to Average Glucose

A1C Mean Plasma Glucose

6 126

7 154

8 183

9 212

10 240

11 269

12 298



In Office A1C Device







Diabetes laboratory evaluation

Hemoglobin A1C

Fasting lipids

Comp panel (creatinine, LFTS, electrolytes)

Urine microalbumin, U/A

TSH

Repeat annually



Diabetes Care Targets

Hemoglobin A1C under 8%

Blood pressure under 140/90

Decrease risk of cardiovascular event



Referrals

Ophthalmologist

Registered dietician for medical nutritional therapy (MNT)

Diabetes self-management education

Podiatrist



Treatment of Hyperglycemia Metformin

At the time of diagnosis start metformin, titrate up to a dose of 1000mg bid.

Contraindications are allergy and renal impairment, rare risk of lactic acidosis

No weight gain or hypoglycemia

Reduction in CV events and death in UKPDS

Lots of GI side effects- diarrhea



Diabetes Hypertension Treatment

In general start with an Ace inhibitor e.g. lisinopril or enalapril

Low cost

Effective

Preserve renal function

Cause a dry cough, angioedema, and can effect renal function and electrolytes

Controlling hypertension is the most effective treatment to prevent death and serious morbidity.

Dyslipidemia in Diabetes

If over 40 years of age begin either simvastatin, lovastatin, pravastain 40 mg, or atorvastatin 20mg.

Don't obsess about hitting an cholesterol target, with the above you have gained most of the benefit in risk reduction

Check liver and renal function yearly



Treatment summary

Hyperglycemia - metformin then sulfonyurea (eg glipizide) target A1C under 8%

Hypertension ACE (lisinopril) then diuretic(chlorthalidone) target under140/90

Lipids moderate dose statin if > 40 years of age e.g. lovastatin 40

Aspirin 81mg if male and over 45 years of age





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Medical Nutrition Therapy and Physical Activity Guidelines for Diabetes

Evidenced-Based Guidelines
American Diabetes Association
2014 Standards of Care





Eating Patterns and Micronutrient Distribution

Should be based on an *individual assessment* of current eating patterns, preferences and metabolic goals

A variety of eating patterns are acceptable for the management of diabetes

Must take into consideration personal preferences (tradition, culture, religion, health beliefs and economics) as well as metabolic goals



Energy Balance, Overweight and Obesity

For overweight or obese adults with type 2 DM (or at risk for DM), reducing energy intake is recommended to promote weight loss

Modest weight loss (4-8 kg) may have clinical benefits (improved glycemia, blood pressure and/or lipids) in some individuals

To achieve moderate weight loss, intensive lifestyle interventions with ongoing support are recommended



Carbohydrate Amount and Quantity

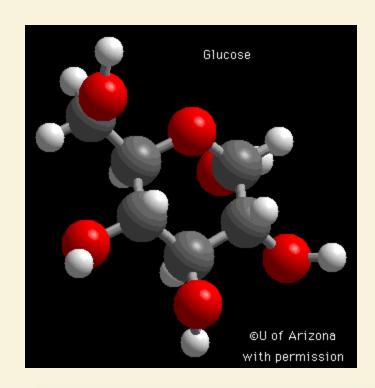
Monitoring carbohydrate intake – whether by carb counting or experience-based estimation, remains a KEY strategy in achieving blood glucose control!

Carbohydrate intake from vegetables, fruits, whole grains, legumes and low-fat dairy products should be advised over other carbohydrate-containing foods made from refined starches and simple sugars



Whether it comes from a green bean or a jelly bean, it all comes down to...

GLUCOSE!





Not all Carbs are Created "Equal"





Focus on Healthy Plant-Based Carbohydrates





Limit commercial baked goods: bagels, donuts, mufffins, cookies....







And snack foods high in refined starch, sodium and simple sugars





Dealing with "Carb-Cravings"

Commonly reported by persons taking SGA

Also reported by individuals in recovery from addictions (alcohol, cocaine) who substitute junk food to satisfy intense cravings and to "cope"

Key is to work with patients to make healthier food substitutions and to make a working list of alternative "self-soothing" behaviors to turn to



Suggestions:

Exercise, Yoga

Meditation

Music

Aromatherapy



Hobbies (art/drawing, knitting, reading, journaling, gardening, volunteering)



Avoid "liquid carbs" to reduce risk of weight gain, hyperglycemia, elevated triglycerides





Dietary Fat Quantity and Quality

Evidence inconclusive for an ideal amount of total fat intake for people with diabetes; TYPE of fat more important

A *Mediterranean-style*, MUFA-rich eating pattern may benefit glycemic control and CVD risk factors

*Extra-virgin olive oil

*Nuts, fruit, vegetables, whole grains, fish

Recent studies link to primary prevention of CVD and diabetes prevention



Limit Saturated Fats in People with Diabetes

Why? Atherogenic, promote plaque formation by increasing levels of cholesterol and LDL in serum

Common sources in diet:

Bacon, sausage

Butter, cheese, ice cream, whole milk, 2% milk

High-fat meats i.e. regular ground beef, hot dogs, bologna

Chitterlings, fatback and salt pork (used in traditional Soul food)

Chocolate



For prevention of heart disease...

Foods containing omega-3 fatty acids (EPA and DHA) recommended for beneficial effects on lipoproteins

Sources of omega-3 fats:

Salmon Flaxseed, ground flax meal

Sardines Walnuts

Albacore tuna

Rainbow trout



MUFA = Monounsaturated Fatty Acids

Ways to maximize "mono's" to help lower cholesterol:

Avocado

Extra Virgin Olive Oil

Canola Oil

Olives

Nuts

Peanut, almond butters

Seeds



MUFA-containing Nuts

Recommend small handful per day (1/3 cup or 15-20

almonds)





Meal Planning Basic Tenets

Key is to improve postprandial glucose control ("excursions"), e.g. 2-hr post-meal blood glucose goal of <180 mg/dl for most

Structured meal times best – advise not to skip or delay meals, *especially* if on insulin or taking a sulfonylurea

Even carb distribution across the course of the day best



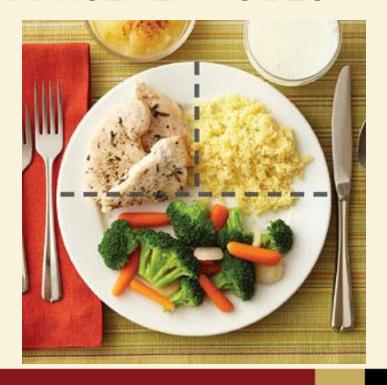
PLATE METHOD FOR MEAL PLANNING

9" PLATE FOR PORTION MANAGEMENT IS BEST

½ non-starchy vegetables

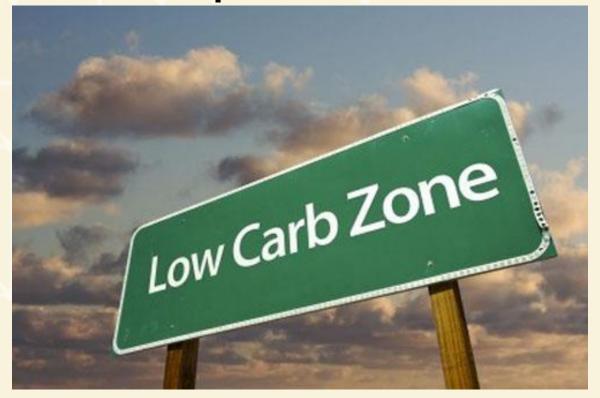
1/4 lean protein (3-5 oz.)

1/4 starch





Provide "road map" to healthier alternatives





Heart-Healthy, Lower Carb

Snack alternatives:







Exercise Considerations for Clients with Type 2 DM and SMI

Individuals living in the community may have limited access to fitness resources, gym equipment and safe areas to exercise

Goal is to help prevent further weight gain secondary to psychotropic and diabetes medications, improve insulin sensitivity and glycemic control, sense of well-being

Ref: Cimo, A et al "Effective lifestyle interventions to improve type II diabetes self-management for those with schizophrenia or schizoaffective disorder: a systematic review" BMC Psychiatry 2012, 12:24

Exercise Prescription

Adults with diabetes or prediabetes should be advised to perform at least 150 min/week of moderate intensity aerobic physical activity spread over at least 3 days/week with no more that 2 consecutive days without exericise

Higher levels of exercise intensity are associated with greater improvements in A1c and fitness, slowing decline in mobility



High-risk, Exercise-naiive DM Patients

Start with short periods of low-intensity exercise (Nu-Step machine, walking) and increase intensity and duration

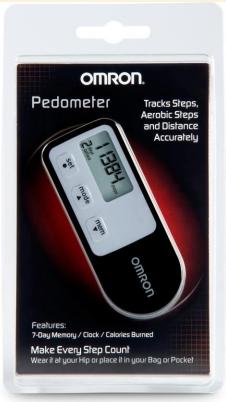
Important to get a Stress Test if new to exercise and additional cardiac risk factors (elevated LDL, hypertension, smoker)



Pedometers are useful tools for tracking steps, daily activity

Pocket pedometers are popular









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Diabetes Self-Management Education and Support Recommendations

Evidenced-Base Guidelines



Diabetes Self-Management Education (DSME) and Diabetes Self-Management Support (DSMS)

Should be offered to all clients/patients (by referral if a CDE not imbedded in your practice setting)

Effect self-management and quality of life are key outcomes of DSME and DSMS

Should address psychosocial issues as emotional wellbeing is associated with positive diabetes outcomes

WHY?

"The hardest part of having diabetes is living the day-to-

day life"





Diabetes Daily "To do" List:

Will I check my blood sugar today? Check my feet?
Will I take my medications as prescribed?
What will I eat for each meal? When will I exercise?







AADE 7 – Diabetes Education Healthy Behaviors

*Healthy Eating

*Physical Activity

*Monitoring (blood glucose, blood pressure, wt., etc.)

*Taking medications (meds change over time)

*Problem-Solving Skills (prevention/treatment of hypoglycemia, exercise considerations, sick days, etc.)

*Risk Reduction (smoking cessation, foot care)

*Healthy Coping



When treatment goals are not met...

Rethink treatment regimen and assess barriers:

- *Income, finances housing, food, transportation, med co-pays, etc.
- *Competing demands (family responsibilities and struggles)
- *Work-related stress, juggling multiple part-time jobs, shift work
- *Health literacy and cultural barriers

Reduce Barriers to Improve Healthy Diabetic Lifestyle Compliance, Improved Outcomes

Examples:

- *Access to a "healthy" food pantry at your clinic
- *Access to local, organic produce ("Prescription for Health" tokens at local Farmers' Markets, use Bridge Card and "Double-Up Food Bucks", community gardens)
- *Assistance with free or reduced price medications
- *Offer tools: medication organizers, measuring cups, pedometers
- *Organize walking support groups! Work to obtain free passes to community recreation centers
- *Partner with area transit to get bus tokens, reduced fare passes

Connect your Diabetics to healthy food!







Approaches to Supporting Persons Living with a Diagnosis of Diabetes

Recognize that there are many layers to self-management

Meet the person "where they are" and find out what's most important to them (motivational interviewing)

Don't overwhelm the person with too much information or attitude, e.g. "you really need to do this, stop doing that, etc."

Use Teach-Back techniques – "tell me how you would treat a low blood sugar", "show me how you test your blood sugar"

Set small, achievable goals, touch base frequently to assess and encourage!

Emphasize empowerment vs. dependence Collaborative, team-based care





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